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ABSTRACT

Content area classes in mathematics, science, and social studies offer many opportunities for students to learn language skills. Teachers of these subjects can be trained to work with students who are learning English as a Second Language (ESL). The lessons in this training module familiarize teachers with classroom management theory and strategies which will help them to integrate the ESL student successfully into the content area classroom. ten activities are described and materials, including five transparency masters and 10 handouts, are contained within the module. Goals for the ten handouts, are contained within the module. Goals for the participants are the following: (1) to become familiar with the problems that second language learners face in the content area classroom; (2) to become familiar with the concept that cognitive skills and language skills are developed through science, mathematics and social studies; (3) to become familiar with organizational techniques used to accommodate students' individual needs; and (4) to become familiar with the benefits of collaborative planning between content area teachers and ESL teachers. The suggested time for completion of the module is 3 hours. Eight more training modules and three technical assistance modules are available on topics related to desegregation and equity. (VM)

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TRAINING MODULE II

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Integrating the ESL Student into the Content Area Classroom

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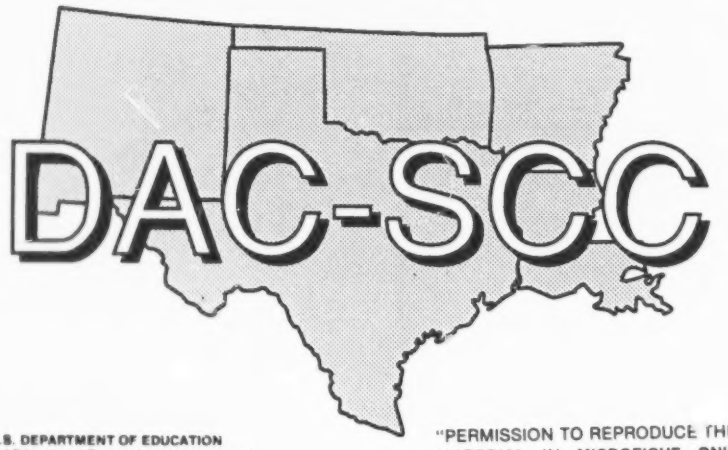

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Training Module II: National Origin Desegregation

Integrating the ESL Student into the Content Area Classroom

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F O R E W O R D

The Desegregation Assistance Center-South Central Collaborative of Region VI, located in San Antonio, Texas, serves the educational equity needs of school personnel, parents and students in a five-state area: Arkansas, Louisiana, Oklahoma, New Mexico, and Texas.

The technical assistance and training that our center provides focuses on the issues and problems related to race desegregation, gender equity and national origin desegregation. This task is great, the needs are diverse, and the geographic area is extensive. Thus, we are pleased to have developed twelve technical assistance and training modules (four in each equity area) that are intended to build the capacity of school personnel to address their own needs.

We wish to acknowledge the excellent collaboration and contributions of our satellite center at the University of New Mexico-Albuquerque, in the development of these modules.

Each module is complete with objectives, pre/post-tests, activities to help participants meet each objective, readings, handouts, and transparency masters. The modules have undergone a rigorous review process by experts in each state in our service area. Their comments and contributions have been carefully incorporated into the final modules. The modules are:

Technical Assistance Modules

Federal Statutes and Directives Regarding National Origin Students

Federal Statutes and Directives Regarding Title IX Compliance

Civil Rights Compliance: An Update

Training Modules

I First and Second Language Acquisition Processes

II Integrating the ESL Student into the Content Area Classroom

III Recognizing Cultural Differences in the Classroom

IV Sex Stereotyping and Bias: Their Origin and Effects

V Modeling Equitable Behavior in the Classroom

VI Avoiding Sex Bias in Counseling

VII Equity in Counseling and Advising Students: Keeping Options Open

VIII Interpersonal Communications: A Human Relations Practicum

IX It's a Matter of Race: Race Relations in the Desegregated Setting

We have attempted to bring you the most up-to-date information in these modules. They are available individually ($7.50 each) or as an entire series ($75.00). A "Trainer of Trainers" session can also be arranged to enhance the capacity of your own personnel to use these modules effectively.

Breaking down the barriers to equal educational opportunity is a critical step towards educational excellence, equity and empowerment for all students. We hope these modules will expedite that effort.

Gloria Zamora, Ph.D.
Director, DAC-SCC

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Integrating the ESL Student into the Content Area Classroom

Summary: This module will familiarize participants with classroom management theory and strategies in order to integrate the ESL student successfully into the content area classroom.

Length of session: 3 hours

Objectives:

1. Participants will become familiar with the problems that second language learners face in the content area classroom.
2. Participants will become familiar with the concept that cognitive skills and language skills are developed through science.
3. Participants will become familiar with the concept that cognitive skills and language skills are developed through mathematics.
4. Participants will become familiar with the concept that cognitive skills and language skills are developed through social studies.
5. Participants will become familiar with organizational techniques used to accommodate students' individual needs.
6. Participants will become familiar with the benefits of collaborative planning between content area teachers and ESL teachers.

Overview of Session:

Time	Objective	Activity	Materials
10 minutes		Warm-up	Handouts (1-2)
10 minutes		Pre-test (optional)	Pre-test
10 minutes	Objective 1	Lecturette	Transparency 1
20 minutes	Objective 2	Lecturette Discussion	Transparency 2 Handout 3
20 minutes	Objective 3	Lecturette Discussion	Transparency 3 Handout 4
20 minutes	Objective 4	Lecturette Discussion	Transparency 4 Handout 5
15 minutes		Break	
35 minutes	Objective 5	Discussion (6-7)	Handouts
20 minutes	Objective 6	Small group (8-9)	Handouts
10 minutes		Post-test (optional)	Post-test
5 minutes	Closure	Transparency 9	
5 minutes	Evaluation		

Warm-up:

Time: 10 minutes

Materials:

Handout 1. Warm-up Activity
Handout 2. Rocks and Water

Process:

(Distribute Handout 1)

Have the participants focus their attention on Handout 1 and instruct them to:

- Read the selection silently.
- Follow the instructions.

Allow time for the participants to react.

Explain that this is a science lesson. Ask individual participants:

1. What is the title of the lesson?
2. What is it about?
3. What are you going to do?

Obviously the participants will not be able to answer the questions. Then ask:

1. How did you feel when faced with this task?
   (frustrated? silly? angry? embarrassed?)
2. What skills did you call upon to attempt to figure it out (word-attack?)

(Distribute Handout 2)

Note:

Handout 1 is typed with the fingers positioned inwardly one key and all letters are capitalized. Handout 2 is typed with the fingers positioned correctly and upper and lower case are used.

Explain that LEP students are faced with similar tasks in content area classrooms and experience more intense feelings because they are children and have not experienced the success that college graduates have.

Pre-test (optional)

Time: 5 minutes

Materials:

Pre-test

Administer the pre-test to the participants. Provide the correct responses from the answer key below.

Answer Key

1. c - LEP students lack the communication skills necessary to understand the instruction in English.

2. b - Teachers can teach English through the content areas.

3. b - Comprehensible instruction is best achieved through activity-based lessons.

4. a,c - Content area teachers should provide a supportive atmosphere and organize learning to introduce English language structures systematically.

5. a,c,d - Content area teachers should pace the content, modify the materials, and make the language of instruction comprehensible.

Pre/Post-test

Name _____ Date _____

Check all answers that apply.

1. LEP students have difficulty mastering content area skills because:

   _____ (a) they do not listen attentively
   _____ (b) they are not interested in school
   _____ (c) they lack the communication skills necessary to understand the instruction
   _____ (d) their culture and language constitute an impediment

2. Content area teachers are responsible for carrying out the following tasks with LEP students:

   _____ (a) assessing their English proficiency
   _____ (b) teaching English through the content areas
   _____ (c) placing LEP students in the appropriate ESL category
   _____ (d) translating the content areas from the second to the first language

3. The cognitive/academic language skills of LEP students are best developed:

   _____ (a) through social interaction with peers
   _____ (b) through activity-based content area lessons
   _____ (c) through audio-lingual drills
   _____ (d) through ESL classes that focus on English grammar

4. The role of content area and ESL teachers in helping LEP students learn English is to:

   _____ (a) organize learning to introduce language structures systematically
   _____ (b) correct grammatical errors always
   _____ (c) provide a supportive and encouraging atmosphere
   _____ (d) be sure that LEP students never use their native (home) language

5. Content area teachers may modify the following to accommodate LEP students:

   _____ (a) pacing of content
   _____ (b) teaching required concepts
   _____ (c) adapting materials
   _____ (d) making the language of instruction comprehensible

Objective 1: Participants will become familiar with the problems that second language learners face in the content area classroom.

Time: 10 minutes

Materials:

Transparency 1. Problems Faced by the LEP Student

Lecturette:

The content area classroom can be a rich social, linguistic, and cognitive environment in which learners of English as a second language can thrive if content area teachers provide the appropriate linguistic and cognitive support for these students.

The content areas at the middle and high school levels begin to demand strong communicative and cognitive competence from all learners. The non- or limited speaker of English faces the very frustrating task of learning in a most unrealistic setting.

(Display Transparency 1)

The older LEP student in content area classrooms faces two problems simultaneously. These problems are acquiring the four communicative tools necessary for general classroom use and applying these tools to content area subjects. For example, a lesson in social studies may require researching a particular topic. The LEP students are excluded from meaningful participation because of their limited reading and writing skills.

This training session will focus on instructional strategies that content area teachers can use to address these two problems faced by older LEP students in content area classrooms.

The content areas can be particularly beneficial for developing both language skills and content knowledge. The focus of activities for ESL students in content area classrooms should be on (1) vocabulary, (2) discourse, (3) structures, (4) language skills, and (5) study skills.

Ask participants to share some examples of the problems faced by their own students.

Objective 2: Participants will become familiar with the concept that cognitive skills and language skills are developed through science.

Time: 20 minutes

Materials:

Transparency 2. Areas of Difficulty for LEP Students in Science
Handout 3. Language Skills Required by Science

Source:

Chamot, Anna Uhl, & O'Malley, J. Michael. A Cognitive Academic Approach: An ESL Content Based Curriculum. Rosslyn, VA: National Clearinghouse for Bilingual Education, 1986.

Lecturette:

Students studying science learn content with topics such as the earth and the solar system, matter and energy, and living things. But they also learn basic scientific methods, such as how to formulate hypotheses, how to propose alternative solutions, and how to evaluate proposed solutions. Together with the development of knowledge concerning the methods of science, students learn more fundamental skills such as observing, describing, classifying, using numbers, using time and spatial relations, measuring, inferring, interpreting data, predicting, generalizing, and communicating findings (Blough & Schwartz, 1984).

Science at the elementary level may be left to the teacher's discretion in many schools, or may be taught as a study of the student's immediate environment. A complete elementary school science curriculum typically includes topics such as matter and its changes, rocks and the land, air and weather, measurement, plants and animals, heat and energy, light and sound, magnetism and electricity, space, forces and motion, conservation and the environment, and human biology (Rockcastle, McKnight, Salamon, & Schmidt, 1980; Schmidt & Rockcastle, 1982). Science at the elementary level generally is taught by the classroom teacher rather than by a science specialist. Science probably is under-represented as a content area in the elementary school because relatively few elementary teachers are sufficiently trained in science education to feel comfortable teaching this subject. Frequently, science textbooks are too difficult for LEP students to read. The teacher needs to simplify the reading by providing comprehensible input -- pictures, films, experiments, and other activities.

At the secondary level, science usually is taught by teachers who have specialized in science education, and the curriculum consists of the natural and physical sciences. At the secondary level students generally focus on one area of science each year. The junior high school curriculum typically includes courses such as life science, earth science, and physical science. Biology, chemistry, and physics courses are offered by most senior high schools, and in some schools astronomy or zoology also may be available. Many science

some schools astronomy or zoology also may be available. Many science topics taught at the secondary level may have been introduced at the elementary level, but in higher grades a more in-depth understanding of the topic and of scientific methods is developed. A similar comparison of the number of textbook pages devoted to a topic at different grade levels illustrates this point.

For example, a sixth grade science book devotes 8 pages to the topic of inherited traits in humans (Rockcastle et al., 1980), a junior high life science text has 43 pages on human heredity (Heimler & Lockard, 1981), and a high school biology text has 91 pages of explanation on this topic (Curtis & Barnes, 1985). The type size decreases and fewer illustrations are used as the grade level increases, so that the language becomes denser and more decontextualized.

Research in inquiry science approaches for LEP students indicates that this content area can be particularly beneficial for developing both language skills and content knowledge. In various studies using inquiry approaches, not only have LEP students been successful in developing science concepts, but their English proficiency also has shown significant improvement as a result of this type of instruction (De Avila, Cohen, & Intili, 1981; Rodriguez & Bethel, 1983).

Science for LEP Students

Even though science activities which involve an inquiry approach and hands-on experiences lead to development of language proficiency, LEP students still may face language-related difficulties in science classes. Typical difficulties encountered by LEP students are in vocabulary, discourse, structures, and language and study skills.

(Display Transparency 2)

Vocabulary: As in other content areas, a specialized vocabulary needs to be learned for science. In addition to technical terms, students also must learn that some non-technical vocabulary has special scientific meanings. This may be particularly difficult for LEP students who are familiar with the common meaning of a word, but do not realize that it has a special meaning when encountered in a scientific context. Words such as table, work, energy, nerve, sense, compound, mass, and respiration have precise scientific meanings as well as more general meanings. By the time students are in high school, the vocabulary load of science textbooks has become so technical that even native English speakers may find comprehension difficult. Words of Greek and Latin derivation often are used for scientific terms, and LEP students (especially those from a non-Western language background) may have difficulty understanding the meanings of roots and affixes derived from these languages. The following example from a high school biology textbook illustrates the type of vocabulary density with which students must contend (Curtis & Barnes, 1985, p. 245):

The members of the kingdom Monera, the prokaryotes, are identified on the basis of their unique cellular organization and biochemistry. Members of the kingdom Protista are single-celled eukaryotes, both autotrophs and heterotrophs.

Discourse: Expository discourse is used to present science concepts. A series of related facts typically are presented, and students must make inferences from these facts to develop hypotheses and conclusions. In written or oral descriptions of experiments, language is organized in a sequence of steps which are to be followed in the order given. This type of discourse structure may be quite different from previous experiences that LEP students have had with English narratives or texts requiring comprehension of material that is less cognitively demanding than the complex information often found in scientific texts.

Structures: Grammatical forms and structures in written science texts become increasingly complex in higher grade levels. Use of the passive voice, multiple embeddings, long noun phrases serving as subjects or objects in a sentence, if...then constructions, and expressions indicating causalities are some of the features of scientific prose that may be difficult for LEP students to comprehend. An example of a difficult structure is the following (Heimler & Lockard, 1981, p. 199): "Growing a new plant from a part of another plant is called vegetative propagation." In a sentence such as this one, the student must read to the end to discover that the noun phrase which acts as the subject of the sentence is in fact a definition for a new term.

(Distribute Handout 3)

Language Skills: All four language skills are required in science classes. In addition to the oral communication skills which accompany the experiential learning in an inquiry approach, students also must use the textbook. They must use productive skills, both oral and written, to participate in activities such as explaining a process, describing observations, classifying into categories, making predictions, and developing hypotheses. As students move up to higher grade levels, they are expected to learn many important science concepts through listening to the teacher's explanations, which often include fewer of the concrete referents that generally are used with younger students. In addition, higher grade levels demand greater literacy skills because students need to be able to read for information and to write to express what they have learned.

Study Skills: Science study skills are similar in many ways to those developed in language arts and social studies. Students need to locate information in text/reference books, and in the library. They need to take notes on class presentations and on information in books, and to understand and use nonverbal information such as diagrams, charts, and tables. As in every subject area, students studying science need to develop test-taking strategies and skills.

These are some of the language areas in which LEP students may encounter difficulties in the science curriculum. Both ESL and regular classroom teachers can help LEP students overcome these difficulties.

Objective 3: Participants will become familiar with the concept that cognitive skills and language skills are developed through mathematics.

Time: 20 minutes

Materials:

Transparency 3. Areas of Difficulty for LEP Students in Mathematics
Handout 4. Language Skills Required by Mathematics

Source:

Chamot, Anna Uhl, & O'Malley, J. Michael. A Cognitive Academic Approach: An ESL Content Based Curriculum. Rosslyn, VA: National Clearinghouse for Bilingual Education, 1986.

Lecturette:

The major reason for studying mathematics is to learn how to solve problems. Through the study of mathematics, students are prepared to solve problems that they may encounter both in the world around them and in the further study of mathematics and science. To become effective problem-solvers, students need to understand concepts, know basic facts, use computational skills efficiently, and select and apply appropriate problem-solving strategies (Eicholz, O'Daffer, & Fleenor, 1985).

The mathematics curriculum develops students' capability to understand concepts through a variety of problem-solving experiences. Manipulative materials or pictorial models can be used prior to working with abstractions. Students develop a foundation in the basic facts and skills, as in addition or subtraction, through understanding a concrete model of the mathematical operation. They develop computational skills through practicing the procedure or using the factual knowledge under a variety of circumstances, and applying the factual information to problem-solving situations. Finally, students develop appropriate problem-solving strategies by having extensive opportunities to use techniques for solving realistic problems in a wide variety of different settings.

The scope and sequence of the mathematics curriculum from the upper elementary through the high school years begins with the foundation of basic mathematics facts established in the earlier elementary years. In becoming acquainted with the mathematics facts of addition, subtraction, multiplication, and division, students work basic number problems until these operations are conceptually familiar and relatively automatic up to four and five digits. In the middle to upper elementary years students begin the study of fractions and decimals; rounding out numbers and estimation; ratios, proportions, and percentages. They may also have begun the study of graphing, probability, and statistics, and most certainly have become acquainted with automatic calculators. Throughout this period, students also will have studied

school, students may study algebra, trigonometry, geometry, and sometimes calculus.

Mathematics for LEP Students

LEP students encounter difficulties with word problems more than with other areas in mathematics because word problems are formulated in school curricula to be highly language-dependent. Fewer serious difficulties can be expected among LEP students with basic mathematics facts or computational skills. LEP students are not alone in having difficulty with word problems. Findings from the National Assessment of Educational Progress indicate that many nine-, thirteen-, and seventeen-year-old students cannot choose the correct computational procedures to solve word problems, even though they may understand the operations required to perform them. Teachers also have commented that the teaching of story problems is one of the most difficult tasks in the elementary school curriculum (Blankenship & Lovitt, 1976).

LEP students often are exited from bilingual or ESL programs on the basis of assessment of their general familiarity with English rather than their specific knowledge of mathematics or other content areas. The LEP student who is mainstreamed may be familiar with general English vocabulary and be able to identify objects in English, communicate appropriately in social situations, and decode simple reading passages that are at least close to his or her own grade level. The LEP student thus will exhibit test performance that is considered adequate for entry into the mainstream of English language instruction. LEP students nevertheless may continue to have difficulty mastering content areas because of specialized language requirements that are unique to each subject, and because content area mastery requires that the student be able to use English as a medium of thought. The development of more advanced cognitive academic language skills may lag behind the development of social communicative language skills by as much as three to five years (Cummins, 1984).

LEP students often are mainstreamed into mathematics classes before other subjects because of the mistaken belief that math does not depend on language. In fact, there are many language-dependent areas of mathematics.

(Distribute Handout 4, which shows the language skills required by grade level)

In our discussion of mathematics instruction for LEP students, we assume that the students will have knowledge of most elementary mathematical concepts, basic facts, and fundamental computational skills in the four basic operations (addition, subtraction, multiplication, and division). Such students are at the middle elementary level or above. The language required to solve word problems and the problem-solving strategies are stressed because these two areas present the most difficulty for LEP students at grade four and above.

The language of word problems in mathematics creates difficulties for LEP students for a variety of reasons.

(Display Transparency 3)

Vocabulary: The language of mathematics is highly specific and lacks the redundancy typically found to assist comprehension with other types of language (Chamot 1985; Chamot & O'Malley 1985; Secada 1985). LEP students may be easily confused by the specialized vocabulary that is common to mathematics. Mathematics has unique terms such as addend and quotient, and terms with specialized meanings such as altogether, round, and table (Cuevas, 1984). To add to the difficulty of understanding this specialized language, the precision with which the language of mathematics is designed ("round" in mathematics, for example, has precise meanings) leads to the infrequent use of redundancy or paraphrasing of meanings as found in other settings. The LEP student therefore has few cues to the meaning of words or phrases apart from the limited and often abstract content that is provided in the words and symbols in the problem statement (Dawe, 1984).

Structures: LEP students also may be confused by the special grammatical constructions in mathematics. Examples of sentences which are commonplace in mathematics but do not appear in other content areas or in beginning-level ESL classes are the following: "Two numbers whose product is 1 are reciprocals of each other." "The operations enclosed in parentheses are to be done first." "By what percent is 16 increased to give 24?" The language of mathematics is not often spoken in day-to-day activities, so students have little opportunity to gain experience with this specialized language in other contexts.

Concept Formation: With word problems, LEP students must process both the language and the mathematical problem conceptually before a solution can be reached. The student must be able to use English as a vehicle of thought and to solve the problem in English, a language that he or she may not understand well at this point. Many word problems require formal operations, or the ability to think abstractly and to manipulate concepts through language. If the student's thought processes are not automatic in the language in which the problem is expressed, but require deliberation because of confusion over unfamiliar meanings of words or phrases, attempts to solve the problem will be delayed if not interrupted altogether. Delay and interruption will happen more often in the case of LEP students. LEP students in first year algebra courses have been noted to misinterpret problem statements and to require extra linguistic processing time, time that prevented them from completing assignments (Mestre, 1984).

Cultural Differences: Other less obvious difficulties in understand mathematics appear upon inspection of the type of mathematics instruction LEP students may have received in their native country. Children in many countries are taught to reverse the positions of the divisor and dividend in division problems, and to use a period in place of a comma in writing the numerals for multiples of a thousand (Secada, 1983). Students in almost every country outside the United States study the metric system exclusively, and thus encounter difficulty with our customary units of measurement (inches, miles, quarts, pounds, etc.)

and are unaccustomed to the emphasis placed on fractions in U.S. schools. A measurement system in which every unit has meaning when divided by ten has little use for fractions. Cultural differences also have been noted in the conceptual strategies that students apply to mathematics. The previous mathematics training of recent immigrant Chinese students has been observed to emphasize accuracy and speed based on memorization of rules and formulas, in contrast to the emphasis on the analytical and conceptual basis of mathematics in current U.S. curricula (Tsang, 1983). While these difficulties do not affect word problems exclusively, they are important to identify when students appear to understand the meaning of the problem but persist in finding an incorrect solution.

Non-language Factors: The foregoing are unlikely to be the only difficulties that LEP students encounter with word problems. Studies with native English-speaking students indicate that reading ability accounts for only a small portion of the errors in word problems (Knifong & Holtman, 1977). Children with normal reading scores who were able to identify both the setting and the question in word problems were often unable to work the problem or even to know where to start. These students experienced procedural, computational, and clerical errors. For these and other students like them, an instructional approach may be required that evokes alternative problem-solving strategies and checks for validity or accuracy.

Objective 4: Participants will become familiar with the concept that cognitive and language skills are developed through social studies.

Time: 20 minutes

Materials:

Transparency 4. Areas of Difficulty for LEP Students in Social Studies
Handout 5. Language Skills Required by Social Studies

Source:

Chamot, Anna Uhl, & O'Malley, J. Michael. A Cognitive Academic Approach: An ESL Content Based Curriculum. Rosslyn, VA: National Clearinghouse for Bilingual Education, 1986.

Lecturette:

The major objective of the social studies curriculum is to help students understand themselves and others by learning how people live now, how they lived in the past, and how society has developed in different regions of the world. An important objective in social studies is the development of an understanding of the need for responsible citizenship and ways in which the students themselves can become responsible citizens.

The emphasis in social studies content is on the history and geography of different peoples and places. Some aspects of political science, economics, sociology, and anthropology often are integrated into the social studies curriculum in the middle and upper grades. The scope and sequence of social studies is similar in most curriculum guides and textbook series. Young children begin by learning about their immediate environment of family, school, and neighborhood. The scope expands in middle grades to include their city, state, and nation, and they begin to learn about life in other parts of the world and in other periods of history. United States history typically is taught at three levels: fifth grade, eighth grade, and eleventh grade. World regions, ancient history, European history, Latin American history, political geography, and government (citizenship) are other content areas generally found in the social studies curriculum.

The traditional approach to teaching social studies has stressed the importance of acquiring basic factual knowledge about historical events and geographical features. Recently, social studies educators have argued that the social studies curriculum should not only teach facts but also seek to develop concepts with universal applications, such as roles, values, institutions, culture, environment, needs versus wants, interdependence, and change. Concept development comes about as the result of active investigation of facts and the use of inquiry or thinking skills (Bacon, 1976). This type of instructional approach requires active and thoughtful student participation, which can be developed through learning strategies and activities for instruction and language development.

In addition to concepts, the social studies curriculum also is designed to teach skills which, although specific to the discipline, have wide application for the development of academic competence in LEP students. These include reading, listening, vocabulary development, academic communication, reading maps and graphs, making tables and charts, study skills, and research and report writing skills. All of these skills develop language proficiency which is directly relevant to school achievement.

Social studies curriculum requires a high level of literacy. The concepts developed often deal with abstract ideas rooted in philosophy, anthropology, political science, and economics.

Social Studies for LEP Students

Since social studies depends so heavily on language, LEP students encounter many difficulties in understanding information presented by the teacher. Even more difficult to understand is the generally decontextualized language in the social studies textbooks. In addition to understanding the language used to discuss social studies topics, students also must be able to discuss the concepts being developed and acquire competence in the skills taught.

(Display Transparency 4)

Vocabulary: As do other disciplines, social studies has a specialized vocabulary which students need to learn in order to discuss and report on the ideas presented. As an example of the vocabulary required for just one area of social studies, the state of Maryland lists 94 technical terms in citizenship which students are expected to learn as preparation for a competency exam in citizenship required for high school graduation. As students move up through the grades, the social studies vocabulary becomes increasingly difficult because of the complexity of the concepts it represents. Words like democracy and representation, for example, are more than simple vocabulary items because they stand for a complex set of ideas developed from a philosophy of government which may be unfamiliar to a LEP student. The following paragraph from a study guide for high school students, while written fairly simply from a grammatical point of view, illustrates the complexity of vocabulary with which students must deal (Maryland State Department of Education, 1985, p. 115):

> Federalism means the division of governmental powers between the national and state governments. Both levels of government may act directly on citizens through their own officials and laws. Both levels of government derive their power to act from our Constitution. Each level of government has certain subjects over which its powers are supreme. Both levels of government must agree to changes in the Constitution.

Discourse: Expository discourse is used to present facts and concepts in social studies. The usual pattern is to begin with a series of chronological events, as in history, or clusters of related facts, as in geography. The initial representation is frequently followed by or is integrated with a discussion of the causes, effects, and evolution of the events or facts described. Students are encouraged to make inferences about meanings, relationships, and concepts. This type of discourse is substantially different both in organization and content from the narrative discourse found in ESL textbooks and readers which may constitute a LEP student's total previous experience with extended text in English.

Structures: In social studies textbooks, long sentences with multiple embeddings are found even at the elementary level, and they increase at upper grade levels. Cause and effect statements are frequent, and a common stylistic variant is to begin sentences with the because phrase. While this may be chronologically logical, it is grammatically difficult because LEP students may be accustomed to finding the subject of a sentence close to its beginning, rather than in its second clause. The following example from a third-grade textbook illustrates this point:

> Because there will be more people in the world in the future, we will need more land to build towns and cities (Buggey, 1983, p. 233).

Social studies texts also use various tense forms and markings in historical narrative to describe temporal relationships to the period being studied. An example from a sixth-grade textbook (with verb and verb phrase underlining added) follows:

> "I found Rome a city of bricks and left it a city of marble." Augustus is supposed to have spoken these words as he lay dying. He was Rome's first emperor, and started the first of its great building programs. He claimed that he had had over 80 temples rebuilt (Marvin, Marvin, & Cappelluti, 1976, p. 154).

In this passage, the verb forms used clarify the sequence of past events, but the variety of forms and use of complex structures such as is supposed to have spoken and had had could make comprehension difficult for a LEP student.

Another structural feature used frequently in social studies textbooks is it as a reference to a previously cited event, fact, or conclusion. When a sentence starts with it, the less proficient English reader may have difficulty in identifying what it refers to without going back to the previous sentence (or even to the beginning of the paragraph).

(Distribute Handout 5)

Language Skills: Academic language skills are utilized in social studies as in other content areas of the curriculum. Emphasis on particular skills may vary with the grade level and the teacher, but in general students must be able to

learn primarily through listening and reading, and to express understanding of the facts and concepts represented through participation in class discussions and through written answers to questions and written reports on research. Handout 5 describes the use of the four language skills in the social studies classroom at different grade levels. As this table demonstrates, some classroom language activities such as understanding explanations, answering questions, and asking for clarification are important at all grade levels. The more cognitively demanding tasks at the higher grade levels require a high degree of literacy, because in these grades students must be able to read to learn and to write in order to express learning.

Study Skills: Social studies skills include and build on study skills developed in ESL and/or language arts. Study skills specific to content areas have been identified as: book skills, library location skills, library resources, note taking and outlining, test taking, varying reading rate, and using graphs, tables, charts, and maps to find and relate information and to make comparisons and projections (Askov & Kamm, 1982).

Break: 15 minutes

Objective 5: Participants will become familiar with two organizational techniques used to accommodate LEP students' individual needs.

Time: 35 minutes

Materials:

Handout 6. What is Sheltered English?
Handout 7. What is Cooperative Learning?

Source:

Northcutt, Linda, & Watson, David. Sheltered English Teaching Handbook. San Marcos, CA: AM Graphics & Printing, 1986.

Lecturette:

Most content area classes will consist of heterogeneous groups of students that include both English-speaking students and LEP students with varying levels of English proficiency. Remember that the goal is to design instructional strategies that will build the communicative competence of LEP students while simultaneously building the cognitive competence of all students in a particular content area.

Two widely used, tested, and effective strategies for accomplishing this dual task are:

1. Sheltered English instruction; and
2. Cooperative learning.

1. **Sheltered English**

(Distribute Handout 6)

Allow participants time to review Handout 6. Expand on each characteristic of Sheltered English duplicated from the Canadian immersion program. Allow time for questions.

- The second language (L2) is a medium of instruction, rather than the object of study.

Language is acquired through meaningful interaction. In Sheltered English, the content area is the meaningful focus and the instruction is activity-oriented (hands-on and concrete). While engaging in concept development activities, students simultaneously learn language. L2 is the medium of instruction, not the object of study.

- Students are grouped homogeneously by L2 ability.

This is a critical aspect of Sheltered English. For short periods, small groups of LEP students are separated from native speakers of English. They should be grouped solely by L2 level. The teacher then focuses instruction solely on that small group for that short period. The teacher may pace instruction and use visual aids; he or she modifies the content material to match the group's L2 level (beginning, intermediate, or advanced). Also, because the group is homogeneous, the LEP students feel encouraged to speak L2 without fear of embarrassment.

- Beginning reading is done through the Language Experience Approach (LEA).

Through appropriate topic-related questions, the teacher draws out a series of statements which either she/he or the student writes. The goal is to help students recognize that what is experienced can be discussed; what is discussed can be written; what is written can be read, and, thus, shared by many. Through LEA, students develop the four communication skills of listening, speaking, reading, and writing through a natural and meaningful style.

- Comprehensible input makes the lesson and instruction meaningful.

"Comprehensible Input" (CI) is a concept developed by Stephen Krashen. Krashen makes a distinction between receiving meaningful, comprehensible language vs. simply hearing a language and not understanding it. The former aids L2 acquisition; the latter is simply noise. A natural source of CI is the playground; however, both ESL classes and content area classes also can become sources of CI. Teachers will need to use a variety of visual aids and avoid grammar-based approaches (e.g., the audio-lingual method), which do little for L2 acquisition. Grammar approaches have been shown to be largely ineffective for adults and even less effective for children.

The Sheltered English Teaching (SET) approach utilizes props, visuals, media, and body language as clues to clarify the meanings of new words and ideas. Teachers incorporate these support systems into their presentations to convey meaning and purpose. Thus learners may meet course objectives and requirements and acquire English fluency.

In contrast to the "regular" classroom where teachers assume English fluency, the SET process is an orchestrated visual and verbal "performance." Teachers use the environment, activities, and pictures to teach new words that later are used as the cornerstone for concept development in subjects such as mathematics, science, history, home economics, etc. Each of these subjects has a content (body of knowledge) for students to master in addition to a world of language. Often teachers overlook the language of mathematics, science, history, and other courses. Within the Sheltered English classroom, the language of these subjects is introduced in ways that are understood easily, making the concepts comprehensible and easy to remember.

To lead these classrooms properly, teachers need to spend time planning, organizing, and preparing the delivery of lessons. The lessons must follow a consistent format so that learners are not being asked to skip around, possibly missing the point or misunderstanding the language. To aid students in remembering the new language and the objectives of the lessons, teachers have found it useful to preteach study skills such as notetaking, outlining, and organizing student information.

The groupings within a regular classroom are left to the discretion of the teacher. Teachers using Sheltered English techniques have found that grouping is a critical part of the process of teaching students. Techniques such as cooperative learning, working in pairs, and joint projects have proven to work better for students acquiring English and content area skills simultaneously. With periodic regrouping of students, the class soon uses skills for interaction and thus acquires "school/subject area" learning and language. Students help one another clarify terms, master objectives, and learn.

Each step of the learning is directed by the teacher, so that the learners come to realize that optimum results spring from matching the thinking process to the task. The teacher's preparation and behavior greatly facilitate student openness to learning. The teacher guides by facilitating language, clarifying terms, and providing ample opportunities for students to define, experience, review, and generalize the content and language skills in English. By carefully engineering the process, planning the instruction, and allowing time for practice and feedback, the teacher merges language, detail, and thought.

The key to mastery of academic information is through comprehensible input. Comprehensibility sets the stage for learning and academic mastery. Teachers can help the process by doing some very simple procedures. These are:

1) Speaking more slowly;
2) Using gestures to aid the visual impact of information;
3) Trying to enunciate and pronounce words correctly;
4) Using overheads or models frequently;
5) Trying to encourage students to provide explanation;
6) Monitoring student mastery.

Essentially, Sheltered English teaching is a synthesis of many techniques you may already use or may have heard discussed. The techniques are those used in the natural language approach, mastery learning, clinical teaching, student study skill development, cooperative learning, and teaching thinking skills.

2. Cooperative Learning

(Distribute Handout 7 and give participants time to review it.)

Cooperative learning is based on the principles of team sports and rewards the helpfulness and sharing that are natural to most students. Teams consist of mixed groups with four to seven students of different ethnic groups, genders, achievement groups, and linguistic levels who discuss problems and quiz and encourage each other. Individual students' achievement is encouraged in order to increase the success of the total group, as team members work toward a common goal.

One of the greatest issues in education today is time on task. After spending hundreds of millions of dollars and thirty years on research, we have uncovered the magic rule of educational success the more a student works, the more that student learns.

But, in the average classroom, the teacher can only give his or her attention to one student or one relatively small portion of the class. As a result, most students frequently find themselves doing seat work while the teacher is busily working with one student or one group of students. And, being human, many of the students stop working while the teacher is occupied with other students. Therefore, much learning time is lost.

In the cooperative group, the emphasis is on mastery of a specific bit of information within a specific time frame. As a result, the group tends to keep the student on task because the entire group will be rewarded if each student does better.

In one study, cooperative learning combined with mastery learning resulted in on-task rates averaging 97%. This means that the students were working and learning 97% of the time. This result exemplifies the effect that the group can have on keeping on task and maintaining effort.

In the conventional classroom, certain individuals become academic stars. Such students are often called gifted or high achievers. But this can lead to a loss for the other students. Usually "stars" dominate the responses and give the other students little opportunity to participate.

Recently a superintendent observed a science teacher with a "star" in the class. The star answered nearly 65% of all the questions asked by the teacher. But, remember, for a learner to master information, he or she must use it actively, and interact with it.

In this classroom, the leadership in science was given only to the star. In cooperative groups, the leadership is split among the participants. A student who is not a star may learn the information and then tutor a student who was absent. Or, he or she may repeat it for another. Or, he or she might have an

insight that is very accurate and that sequentially reasoning friends just don't "see."

The point is simple. All students in the cooperative experience do become academic leaders on a frequent, even daily, basis. As a result, their self-esteem and self-acceptance grow.

Note to the presenter: *Pages 25-28 may be used as an additional handout.*

Types of Cooperative Classroom Organizations

There are several ways of organizing classrooms to enhance cooperative efforts. These different types range from ones that have been used extensively in the traditional classroom to others that demand time and effort to plan, implement, and evaluate. Though the more familiar ones do encourage cooperation, the more extensive ones have shown themselves to be very effective in attaining the impacts resulting from the cooperative effort.

Simple Cooperative Structures

Spencer Kagan (1985) outlines these simple cooperative classroom structures:

1) Group Discussion: A very traditional approach which is an excellent complement to a traditional lesson. However, some effort needs to be made by the teacher to ensure that the questioning strategy implemented does not defeat the purpose of this structure.

2) Numbered Heads Together: Children are put into groups, and each child is given a number. After a question is asked or a task assigned, the group works on the task. The answer is given by a child with a specific number; e.g., the "sevens" in a group would answer the question.

3) Team Practice and Drill: In this model, the learning of the material is up to the group. Following a traditional lesson, each group gets together to practice, e.g., for the spelling test, or to work on the assignment.

4) Peer Tutoring: Simply the assignment of one individual to work with another student to learn the information at hand. This can be implemented very effectively by offering "bonus" points to high-achieving students for tutorial efforts.

5) Team Grade: Students on each team receive the grade that the team earns. Projects or specific types of assignments can be given that can be done in teams, or the improvement for an entire group of students can be assigned a grade value.

6) Bootstrap: This is a technique of awarding scores to a group based on a weighting or handicapping model. One way of weighting would be to give each member of the group the score of the lowest child in the group. Another would be to give each member a score equal to the average of the two lowest performers. A further bootstrap approach would be to develop a handicapping system akin to that used in golf or horseracing.

Handicapping systems make races or golf games closer because the best players are given a handicap, as the best horses have to carry more weight in a horse race.

7) Team Product: This is a technique in which a group of students produce one particular product.

8) Roundtable: A worksheet is passed around the table. Each student needs to do only a specified portion. Fellow students may tutor anyone who needs it because the roundtable is followed by a quiz to insure mastery for all participants.

9) Cooperative Review: Here students create quiz questions to prepare for the actual quiz. This form of cooperative learning is frequently used at higher levels of education but can be reproduced even at the elementary level.

Sophisticated Cooperative Structures

Robert Slavin, at John Hopkins University, has identified several sophisticated classroom organizational structures. These structures are called: Student Teams Achievement Divisions (STAD), Jigsaw I, & II, and Teams-Games-Tournaments.

STAD: STAD is a simple team technique in which students work in four- or five-member teams. Then the students take individual quizzes to make points for their teams. There are several components that are crucial to implementing STAD effectively in the classroom. These components are class presentation, team (group) work, quizzes, evaluation of individual improvement, and team recognition.

1) Class Presentation: The normal lecture/discussion is used in most classrooms. The difference is that the student must realize that the class presentation can help the group achieve.

2) Team or Group Work: Essential to this approach is having the team work on academic materials. The key to good teams is the selection of team members to represent a good cross-section of the class. Assignment of appropriate members to each team is a very important step, and one that needs to be taken with care.

The major purpose of the team is to prepare its members for the quiz. Strong emphasis is placed on team members doing their best for the team, and on the team doing its best for its members.

3) Quizzes: These are similar to quizzes used in classrooms. However, the quizzes need to be very content-specific or criterion-referenced. That means that a quiz must be sensitive enough to measure change in learning from one testing to another. Since the team reward in STAD is based upon individual

improvement, the quizzes must be able to measure pre-test to post-test gains for each child.

4) Team Rewards: Once the quizzes are scored, individual gains for each teammate are calculated. The team with the greatest gains receives recognition. This recognition could be in the form of placing the team name on a special board, special privileges for the team, etc.

5) Individual Improvement: The key to improved performance is the setting of individual goals that are attainable between the quizzes. These goals must represent an increasingly greater effort on the part of the student. This is done by establishing a minimum score (a score that one would expect for the post-test). The student then earns extra points by scoring above the minimum. The base or minimum is reset every two weeks to insure the maintenance of a reasonable minimum and an achievable goal.

Jigsaw I & II: Although there are two versions of Jigsaw, the Jigsaw II is most popular for classroom use. This team approach, developed by Elliot Aronson, was first examined as a technique to increase students' liking for others in the integrated classroom. But its impact on academics was so positive that additional interest was generated on this basis.

Jigsaw I: In Jigsaw I, students are placed on five- or six-member teams. Materials to be learned in the classroom are divided into as many parts as there are members on each team. For example, an historical event, like the Civil War, might be broken down into events that preceded the war, early war years, crucial mid-war events, etc.

Each student is given different materials, so one limitation of Jigsaw I is that textbooks usually cannot be used. But Jigsaw I makes each individual an expert, and, therefore, very valuable to the team.

After the student has become an expert on a particular portion of the materials, then he or she teaches that portion to other students. Following this instruction, the students take a quiz on all the material.

Jigsaw II: In Jigsaw II, individual students still become experts, but there are some notable differences from Jigsaw I. Since each team has a member studying a particular area, the members of different teams who are working on the same area get together and form "expert groups." These expert groups study together to master the information.

Once the members of the expert groups master the information, each member returns to his or her original team. In the team structure, the "expert" then trains the others or teaches them the information. After this training, the whole team takes a quiz covering the total body of information.

One of the differences between Jigsaw II and Jigsaw I is that in Jigsaw II the original team has the same materials or reads basically the same

information, so that developing very specific information packets or reading materials for each team member is unnecessary. But "expert sheets," asking crucial questions for discussing important ideas, need to be developed to ensure that each expert group does, in fact, become "expert."

As in the other, more sophisticated, approaches to team learning, the heterogeneously grouped team takes a quiz covering the total body of information. Again, the team receives a score based on the performance of its members as measured by their improvement scores. High scoring teams and individuals are recognized in a newsletter or on a bulletin board. The key to Jigsaw I and Jigsaw II is the interdependence of the student team members.

Teams-Games-Tournaments: Teams-Games-Tournaments, or TGT, as it is abbreviated, is a thoroughly researched team approach. TGT is very similar to STAD because:

1) students are assigned to a four- or five-member heterogeneously grouped team;
2) students receive a traditional lecture/discussion from the teacher;
3) students work together in teams to master the information;
4) students take a quiz on the information; and
5) teams are rewarded according the performance of the team members.

TGT is different from STAD in two respects. First, the quizzes are termed tournaments in which team members can earn points. Second, students compete, as in "tournaments," with others who have comparable academic skills (based on past performance). That is, gifted students compete against other gifted students, average students against other average students, and LEP students against other LEP students for grades or points on academic tests.

In this way, specific individual improvement, as measured by a criterion-referenced or content-specific test, becomes less important. Further, students actually feel, for once, that they can compete successfully without having to worry about being outperformed by the more academically talented students.

Objective 6: Participants will become familiar with the benefits of collaborative planning between content area teachers and ESL teachers.

Time: 20 minutes

Materials:

Handouts:

8. Sample Collaborative Planning Worksheet
9. Collaborative Planning Worksheet
10. ESL Hints for Content Area Teachers

Process:

(Distribute Handout 8)

1. Review the Sample Collaborative Planning Worksheet. Explain that items on the left are provided by the content area teacher and items on the right are provided by the ESL teacher.

2. Form groups based on content area interests: social studies, science, mathematics, etc. If possible, have at least one ESL teacher in each group.

(Distribute Handouts 9 and 10)

3. Ask each group to identify one concept (essential element) on which to focus. Brainstorm ideas through which content area teachers and ESL teachers can collaborate to build both the language and the content area skills of LEP students.

4. Have each group share the results of its collaborative planning session.

Post-test: (optional)

Time: 10 minutes

Administer the post-test and clarify any misunderstandings the participants may have. Answers and responses are provided on the Answer Key.

Closure:

Time: 5 minutes

Materials:

Transparency 5. Points to Remember

Review the following points in summarizing and bringing closure to the session:

1. Second language learners have to acquire and be able to use the communication tools of listening, speaking, reading, and writing in the content area subjects.

2. Language skills interrelate with content area skills through listening to the content and being able to read, to have discourse, and to write about content.

3. ESL methodologies have been developed to teach the varying levels of English proficiency. ESL methods should interrelate with content area techniques.

4. Knowledge of organizational techniques and teaching approaches will facilitate the accommodation of students' individual needs.

5. Planning is the key to managing content area lesson instruction for the different ESL levels and the native English speaker.

6. In order for the LEP student to succeed academically, there must be collaboration between the content area teacher and the ESL teacher.

Evaluation:

Time: 5 minutes

Distribute the evaluation forms and have the participants complete them.

PROBLEMS FACED BY THE LEP STUDENT

1. **ACQUIRING THE FOUR TOOLS FOR COMMUNICATION FOR GENERAL CLASSROOM USE:**
   - **LISTENING**
   - **SPEAKING**
   - **READING**
   - **WRITING**

2. **APPLYING THESE TOOLS IN CONTENT AREA SUBJECTS SUCH AS:**
   - **MATHEMATICS**
   - **SCIENCE**
   - **SOCIAL STUDIES**
   - **ENGLISH**

Chamot & O'Malley, 1986

Areas of Difficulty for LEP Students in Science

1. **Vocabulary:**

   "The members of the kingdom Monera, the prokaryotes, are identified on the basis of their unique cellular organization and biochemistry. Members of the kingdom Protista are single-celled eukaryotes, both autotrophs and heterotrophs."

2. **Discourse:**

   Scientific concepts usually are presented in expository discourse. Students must make inferences from these facts to develop hypotheses and conclusions.

3. **Structures:**

   "Growing a new plant from a part of another is called vegetative propagation."

4. **Language skills:**

   Handout 3

5. **Study skills:**

   a. Locate information in textbooks, reference books, library, etc.
   b. Take notes from lectures and books
   c. Interpret information from diagrams, charts, and tables
   d. Develop test-taking strategies

Chamot & O'Malley, 1986

Areas of Difficulty for LEP Students in Mathematics

1. **Vocabulary:**

   Mathematics uses unique terms, e.g.,

addend	altogether	table
quotient	round	symbols ><

2. **Structures:**

   "Two numbers whose product is 1 are reciprocals of each other."
   "The operations enclosed in parentheses are to be done first."
   "By what percent is 16 increased to give 24?"

3. **Concept formation:**

   LEP students must process both the language and the mathematical problem before they can reach a solution.

4. **Cultural differences:**

   a. Metric system vs. inches, miles, quarts, pounds
   b. periods vs. commas
   c. reversed positions of the divisor and dividend

5. **Nonlanguage factors:**

   a. procedural processes (what to do first, second, etc.)
   b. computational errors
   c. clerical errors

Chamot & O'Malley, 1986

Training Module II: NOD
Transparency 4

Areas of Difficulty for LEP Students in Social Studies

1. Vocabulary

"Federalism means the division of governmental powers between the national and state governments. Both levels of government may act directly on citizens through their own officials and laws. Both levels of government derive their power to act from our Constitution. Each level of government has certain subjects over which its powers are supreme. Both levels of government must agree to changes in the Constitution." (Maryland Department of Education, 1985, p. 115).

2. Discourse:

Students are asked to explain: "Why are events important?", etc.

3. Structures:

"Because there will be more people in the world in the future, we will need more land on which to build towns and cities" (Buggey, 1983, p. 233).

"I found Rome a city of bricks and left it a city of marble." Augustus is supposed to have spoken these words as he lay dying. He was Rome's first emperor, and started the first of its great building programs. He claimed that he had had over 80 temples rebuilt" (Marvin, Marvin, & Cappelluti, 1976, p. 154).

4. Language skills:

Handout 5

5. Study skills:

a. Locating information in books
b. Locating library resources
c. Note-taking skills
d. Outlining skills
e. Test-taking skills
f. Varying reading rate
g. Using graphs, tables, charts, maps, etc.

Chamot & O'Malley, 1986

POINTS TO REMEMBER

1. Second language learners have to acquire and be able to use the communication tools for listening, speaking, reading, and writing in the content area subjects.

2. Language skills interrelate with content area skills through listening to the content, being able to read about content, being able to have discourse about content, and being able to write about content.

3. ESL methodologies have been developed to teach the varying levels of English proficiency. ESL methods should interrelate with content area techniques.

4. Knowledge of organizational techniques and teaching approaches will facilitate the accommodation of students' individual needs.

5. Planning is the key for managing content area lesson instruction for the different ESL levels and the native English speaker.

6. In order for the LEP student to succeed academically, there must be a collaboration between the content area teacher and the ESL teacher.

Source:

Chamot, Anna Uhl, & O'Malley, J. Michael. A Cognitive Academic Approach: An ESL Content Based Curriculum. Rosslyn, VA: National Clearinghouse for Bilingual Education, 1986.

Warm-up Activity

TIVJD SBF ESYRT

EGRB ESYRT GKIED IBRT KSBF UB DYTRSND SBF TUBRTD, UY NIBRD OURVRD IG TIVG. EGRB TIVJ OURVRD NIBR, YGRT GUY RSVG IYGRT SBF YGRT GUY YGR NIYYIN IG YGR DYTRSN. DNSKK NUYD IG YGR TIVG OURVRD NTRSJ IGG. YGR TIVJ OURVRD NRVINR NITR TIYBFRF SBF KRDD DGSTO. DNSKK NUYD IG TIVJ FUDDIKBR UB YGR ESYRT IG YGR DYTRSN.

YI GUBF IYY EGSY ESYRT FIRD YI TIVJD SBF EGSY TIVJD FI YI ESYRT, ER STR HIUBH YI FI SB RCORTUNRBY. YGRDR STR YGR DYROD:

1. NSJR YGTRR OUKRD ID DYIBRD, RWYSK UB BYNNRT. RSVG OUKR DGIYKD GSBR YGR DSNR JUBFD IG DYIBRD.
2. OYY RSVG OUKR IG DYIBRD UB S HST. KSNRK YGR HSTD S, N, SBF V.
3. GUKK HSTD S SBF N GSKG GYKK IG ESYRT. OYY YGR KUFD IB SKK YGTRR HSTD SBF VKIDR YGRN YUHGYKT.

ROCKS AND WATER

When water flows over land in streams and rivers, it moves pieces of rock. When rock pieces move, they hit each other and they hit the bottom of the stream. Small bits of the rock pieces break off. The rock pieces become more rounded and less sharp. Small bits of rock dissolve in the water of the stream.

To find out what water does to rocks and what rocks do to water, we are going to do an experiment. These are the steps:

1. Make three piles of stones, equal in number. Each pile should have the same kinds of stones.

2. Put each pile of stones in a jar. Label the jars A, B, and C.

3. Fill jars A and B half full of water. Put the lids on all three jars and close them tightly.

Training Module II: NOD
Handout 3

Language Skills Required by Science

Skill	Grades 1-3	Grades 4-6	Grades 7-12
Listening			
1. Understanding explanations without concrete referents.	○	◒	●
2. Understanding demonstrations.	○	◒	●
3. Following directions for experiments.	○	●	●
4. Listening for specific information.	○	◒	●
5. Working with a partner on an experiment.	◒	●	●
Reading			
1. Understanding specialized vocabulary.	○	◒	●
2. Understanding information in the textbook.	○	◒	●
3. Finding information from graphs, charts, and tables.	○	◒	●
4. Following directions for experiments.	○	◒	●
5. Finding information in reference materials.	○	◒	●
Speaking			
1. Answering questions.	●	●	●
2. Asking for clarification.	●	●	●
3. Participating in discussions.	●	●	◒
4. Explaining and demonstrating a process.	○	◒	◒
5. Working with a partner on an experiment.	◒	●	●
Writing			
1. Writing answers to questions.	○	●	●
2. Noting observations.	○	◒	●
3. Describing experiments.	○	◒	●
4. Writing reports.	○	◒	●

less emphasis ○ ◒ ● more emphasis

Source:

Chamot, Anna Uhl, & O'Malley, J. Michael. A Cognitive Academic Approach: An ESL Content Based Curriculum. Rosslyn, VA: National Clearinghouse for Bilingual Education, 1986.

Training Module II: NOD
Handout 4

Language Skills Required by Mathematics

Skill	Grades 1-3	Grades 4-6	Grades 7-12
Listening			
1. Understanding explanations without concrete referents.	○	◒	●
2. Understanding oral numbers.	●	●	●
3. Understanding oral word problems.	○	◒	◒
Reading			
1. Understanding specialized vocabulary.	○	◒	●
2. Understanding explanations in the textbook.	○	◒	●
3. Reading mathematical notations and equations.	○	◒	●
4. Understanding word problems.	○	●	●
Speaking			
1. Answering questions.	●	●	●
2. Asking for clarification.	●	●	●
3. Explaining how the answer was derived.	○	◒	●
Writing			
1. Writing verbal input numerically.	◒	◒	◒

less emphasis ○ ◒ ● more emphasis

Source:

Chamot, Anna Uhl, & O'Malley, J. Michael. A Cognitive Academic Approach: An ESL Content Based Curriculum. Rossyln, VA: National Clearinghouse for Bilingual Education, 1986.

Training Module II: NOD
Handout 5

Language Skills Required by Social Studies

Skill	Grades 1-3	Grades 4-6	Grades 7-12
Listening			
1. Understanding explanations.	●	●	●
2. Listening for specific information.	○	◒	●
Reading			
1. Understanding specialized vocabulary.	○	◒	●
2. Understanding explanations in the textbook.	○	◒	●
3. Finding information from graphs, charts, and maps.	○	◒	●
4. Using a flexible reading rate (skimming and scanning.	○	◒	●
5. Finding information in reference materials.	○	◒	●
Speaking			
1. Answering questions.	●	●	●
2. Asking for clarification.	●	●	●
3. Participating in discussions.	●	◒	◒
4. Presenting oral reports.	○	◒	●
Writing			
1. Writing answers to questions.	○	●	●
2. Labeling maps, graphs, and charts.	●	◒	○
3. Writing reports.	○	◒	●

less emphasis ○ ◒ ● more emphasis

Source:

Chamot, Anna Uhl, & O'Malley, J. Michael. A Cognitive Academic Approach: An ESL Content Based Curriculum. Rosslyn, VA: National Clearinghouse for Bilingual Education, 1986.

WHAT IS SHELTERED ENGLISH?

What is Sheltered English?

Sheltered English is an approach used to make academic instruction in English understandable to LEP students.

Mainstream subject content is taught using English as the medium of communication to LEP students homogeneously grouped for level of English language proficiency.

Where did Sheltered English come from?

Sheltered English programs are modeled after the highly successful French immersion programs, developed for English-speaking Canadian children.

What are the characteristics of Canadian immersion programs which Sheltered English tries to duplicate?

1. L2 (French in Canada, English in the United States) is used to teach regular academic subjects. L2 is the medium of instruction, rather than the object of study.

2. Students are grouped homogeneously by L2 ability.

3. Beginning reading instruction is primarily through the Language Experience Approach (LEA) rather than through phonics.

4. Lessons and instruction in general are made comprehensible to students through a variety of techniques which include extensive use of visual aids, adaptation of materials, and modification of teacher language.

5. Language is acquired through interactions with meaningful content.

6. Emphasis is on vocabulary and concepts, not grammar.

7. Instruction follows an activity, student-centered approach rather than the traditional teacher-centered approach.

WHAT IS COOPERATIVE LEARNING?

Cooperative learning involves students working together in a group small enough so that everyone can participate in a task that has been clearly assigned.

In cooperative groupwork, students are expected to carry out their task without direct and immediate supervision by the teacher or aide.

Remember: GROUPWORK IS NOT ABILITY GROUPING OR INDIVIDUALIZED INSTRUCTION

ADVANTAGES OF GROUPWORK

Provide the best setting for conceptual learning
Provide the best setting for creative problem-solving
Improves oral communication skills
Teaches pro-social behavior
Handles academic differences: children learn to teach each other
Solves management problems for complex curricula

WHAT ARE THE CHARACTERISTICS OF A COOPERATIVE LEARNING EXPERIENCE?

1. The group makes sure that everyone understands what to do.
2. The group takes care of set-up, clearing up, record keeping, and movement between learning centers.
3. The group helps to keep everyone on task.
4. The group members assist and explain to each other.
5. The teacher is called in only when no one in the group can help.

WHAT IS THE ROLE OF THE TEACHER?

1. Plan the cooperative exercises (tasks).
2. Provide the materials.
3. Assign roles.
4. Observe the group as it works.
5. Manage any conflict.
6. Let the group do its work.

SAMPLE
COLLABORATIVE PLANNING WORKSHEET

Choose a concept to be taught and determine the processes appropriate to each step.

Content Area: *Science* Grade _____
Concept: *Solar System*

CONTENT AREA TEACHER ESL TEACHER

I. Identify the objectives

The student will identify the planets in the solar system.

The student will name the planets and will be able to discuss something about each.

II. Select the instructional strategies

Use a film of the solar system;
Use a model of the solar system; or
Plan a field trip to a planetarium.

Use visuals to create conversations and activities. Use mnenomic devices to reinforce the names of the planets.

III. Check for understanding

Use Jeopardy game questions, spelling bee activities, etc.

Use a worksheet on the solar system

IV. Reteach the concept

Use visuals to discuss each planet.

Have the class build a model of the solar system and hang it from the ceiling of the classroom.

COLLABORATIVE PLANNING WORKSHEET

Choose a concept to be taught and determine the processes appropriate to each step.

Content Area:_____ Grade _____

Concept:_____

_____

CONTENT AREA TEACHER ESL TEACHER

_____

I. Identify the objectives

_____

II. Select the instructional strategies

_____

III. Check for understanding

_____

IV. Reteach the concept

_____

ESL HINTS FOR CONTENT AREA TEACHER

1. Explain special vocabulary terms in words known to the students.
2. Provide pictures to illustrate new words and terms.
3. Use pictures, tables, maps, diagrams, globes, and other visual aids to assist in comparison and contrast for comprehension of concepts.
4. Present clear illustrations and concrete examples to assist the students in understanding complex concepts and skills.
5. Prepare difficult passages from textbooks on tape for listening activities.
6. Maintain a library of supplementary books and workbooks written in simple English which offer additional illustrations for problems.
7. Highlight written materials for readability by enlarging the size of print, by organizing chapters meaningfully, and by writing headings that show introductions or transition from one idea to another.
8. Provide biographies of significant men and women from different cultures.
9. Develop interests and arouse curiosity through hands-on experiences, the out-of-doors, pictures, newspaper clippings, and periodicals.
10. Use outline maps for students to practice writing in the details and labels.
11. Support reading instruction by providing films, records, filmstrips, and other materials which may be used independently or in small groups.
12. Tape record problems for independent listening assignments.
13. Offer a variety of reference materials at the students' instructional level for independent use.
14. Collect many of the comic books available that portray historic and cultural events in simplified language.
15. Use cartoons and leave the balloons above the speakers blank, to be filled in by the students.
16. Encourage the use of diagrams and drawings as aids to identifying concepts and seeing relationships.

17. Keep a variety of number games to be played by pairs of students or small groups.

18. Show the same information through a variety of different charts and visuals.

19. Write instructions and problems using shorter and less complex sentences.

20. Use student pairs for team learning, especially for reports, experiments, and projects.

21. Limit the number of problems that must be worked.

22. Deemphasize speed and emphasize accuracy of work.

23. Limit the number of variables in laboratory experiments.

24. Ask numerous questions which require higher level thinking responses.

25. Use language experience techniques in discussing concepts and ideas.

26. Assign short homework tasks that require reading.

27. Have students prepare collections of science objects, such as sticks and leaves.

28. Have students prepare individual card files of science, mathematics, and social studies vocabulary.

29. Have students compile notebooks of their hypotheses, materials, procedures, data, conclusions of experiments, and field experiences.

30. Have students use a timeline to arrange and sequence important facts.

31. Have students underline key words or important facts in written assignments.

Race Desegregation - Gender Equity - National Origin Desegregation

TECHNICAL ASSISTANCE AND TRAINING MODULES

ORDER FORM

Technical Assistance Modules	Unit cost	# of copies	Total
Federal Statutes and Directives Regarding National Origin Students	$7.50	_____	_____
Federal Statutes and Directives Regarding Title IX Compliance	$7.50	_____	_____
Civil Rights Compliance: An Update	$7.50	_____	_____
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Race Desegregation -- Gender Equity -- National Origin Desegregation

TECHNICAL ASSISTANCE MODULES

Federal Satutes and Directives Regarding National Origin Students will familiarize participants with the legal aspects of providing services to limited English proficient (LEP) students. pp

Federal Statutes and Directives Regarding Title IX Compliance will familiarize participants with the legal aspects of sex discrimination under Title IX compliance. pp 48

Civil Rights Compliance: An Update will familiarize participants with the legal intent, the procedural requirements, and the employment practice requirements contained in Title VI of the Civil Rights Act of 1964 and Section 504 of the Rehabilitation Act of 1973. pp 65

TRAINING MODULES

I ***First and Second Language Acquisition Processes*** will familiarize participants with the processes a non-English-speaking student goes through as he/she acquires English as a second language. pp 43

II ***Integrating the ESL Student into the Content Area Classroom*** will familiarize participants with classroom management theory and strategies that integrate the ESL student successfully into the content area classroom. pp 46

III ***Recognizing Cultural Differences in the Classroom*** will familiarize participants with cultural elements that some national origin minority populations may bring to the school environment. pp. 45

IV ***Sex Stereotyping and Bias: Their Origin and Effects*** will assist participants in identifying sources and effects of sex stereotyping and bias, in the classroom setting and in society as a whole. pp 52

V ***Modeling Equitable Behavior in the Classroom*** will assist participants in identifying and practicing classroom behaviors and language patterns that are free of gender stereotyping and bias. pp 52

VI ***Avoiding Sex Bias in Counseling*** will allow counselors the opportunity to review concepts and strategies that can be used to provide students with sex-fair guidance. pp

VII ***Equity in Counseling and Advising Students: Keeping Options Open*** will provide participants with cross-cultural counseling practices that can be used when working with culturally diverse populations. pp 45

VIII ***Interpersonal Communications: A Human Relations Practicum*** will provide participants with information on the skills which establish foundations for effective interpersonal communication. pp. 65

IX ***It's A Matter of Race: Race Relations in the Desegregated Setting*** will familiarize the participants with key issues regarding interpersonal race relationships in the desegregated setting, and offers suggestions on how to handle these relationships effectively. pp. 69

This module is one of a twelve-part series.
Each title is available at a cost of $7.50.
The entire series is available at a cost of $75.00.

The series consists of:

Technical Assistance Modules

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